

# Cardiac Arrest: Adult Asystole / Pulseless Electrical Activity

## History

- Past medical history
- Medications
- Events leading to arrest
- End stage renal disease
- Estimated downtime
- Suspected hypothermia
- Suspected overdose
  - Tricyclic
  - Digitalis
  - Beta blockers
  - Calcium channel blockers
- DNR

## Signs and Symptoms

- Pulseless
- Apneic
- No electrical activity on ECG
- No heart tones on auscultation

## Differential

- Hypovolemia (Trauma, AAA, other)
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypothermia
- Hypo/Hyperkalemia
- Hypoglycemia
- Tension pneumothorax
- Tamponade, Cardiac
- Toxins (Tricyclic, Digitalis, Beta blockers, Calcium channel blockers)
- Thrombosis, Pulmonary embolus
- Thrombosis, Myocardial infarction

### Cardiac Arrest: General Protocol

B	EMT	B
P	EMT - P	P

	<b>Continue Continuous Chest Compressions and Ventilations</b> <b>Push Hard (~ 2 inches) Push Fast (~ 110 / min)</b> <b>Change Compressors every 2 minutes</b> <b>(Limit changes / pulses checks ≤ 5 seconds)</b>
P	Cardiac Monitor

**AT ANY TIME**

**Return of  
Spontaneous  
Circulation**

**Go to  
Post Resuscitation  
Protocol**

Follow  
Rhythm Appropriate  
Protocol

**Shockable Rhythm**

NO

Dialysis / Renal Failure  
Protocol  
**if indicated**

	Search for Reversible Causes	
	IV Procedure	IO Procedure
P	Normal Saline Bolus 500ml IV / IO	
	Epinephrine (1:10,000) 1 mg IV / IO Repeat every 3 to 5 minutes	

**Return of Spontaneous Circulation**

YES

Go to  
Post Resuscitation  
Protocol

NO

Complete 25 minutes of advanced life  
support care for persistent asystole

**Criteria for Termination**

YES

Go to  
Termination of  
Resuscitation  
Protocol

NO

Transport to Nearest  
Appropriate Hospital

**Notify Destination Hospital**

### Consider Early for PEA

1. Repeated Saline Boluses for possible hypovolemia
2. Dextrose 10% 100cc bolus IV/ IO for Glucose < 69
3. Calcium Chloride 1g IV/IO for suspected hyperkalemia or hypocalcemia
4. Sodium Bicarbonate 50meq IV/ IO for possible overdose, hyperkalemia, or renal failure
5. Magnesium Sulfate 2g IV/IO for suspected hypomagnesemia or digitalis toxicity
6. Chest Decompression

# Cardiac Arrest: Adult Asystole / Pulseless Electrical Activity

## Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypothermia
- Hypo / Hyperkalemia
- Hypoglycemia
- Tension pneumothorax
- Tamponade; cardiac
- Toxins
- Thrombosis; pulmonary (PE)
- Thrombosis; coronary (MI)

## Pearls

- **SURVIVAL FROM PEA OR ASYSTOLE is based on identifying and correcting the CAUSE: consider a broad differential diagnosis, with early and aggressive treatment of possible causes.**
- **Effective CPR and prompt defibrillation are the keys to successful resuscitation; therefore, primary resuscitative efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.**
- **DO NOT HYPERVENTILATE! Ventilations are accomplished utilizing an adult BVM with just enough compression to achieve chest rise. Ventilate at 6 breaths per minute (once every 10 seconds) with continuous, uninterrupted compressions.**
- If functioning appropriately, the preference is to leave the i-gel in place to limit interruptions in chest compressions. If intubation is considered, do not interrupt chest compressions to place the endotracheal tube. Frequently reassess airway placement and EtCO<sub>2</sub>, especially after every move, and at transfer of care.
- Sodium Bicarbonate, while no longer recommended as a standard cardiac arrest medication, may be consider in the dialysis / renal patient, known hyperkalemia or suspected overdose at 50 mEq IV / IO.
- Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.
- Potential protocols used during resuscitation include Hyperglycemia / Hypoglycemia, Poisoning: Overdose / Toxic Ingestion, and Dialysis / Renal Failure.
- **Patients in persistent PEA who are transported must be routed to a STEMI Receiving Center!**